

## CLAIMS

What is claimed is:

1. A peptide characterized in being immunogenic and obtainable from the minor Histocompatibility antigen HA-1, said peptide further characterized by comprising a sequence selected from the group of sequences consisting of VLXDDLLEA (SEQ ID NO:\_\_), KECVLXDDL (SEQ ID NO:\_\_), combinations thereof, and a derivative of any thereof having  
5 similar functional or immunological properties, wherein X represents a histidine or an arginine residue.
2. The peptide of claim 1, wherein the sequence is VLHDDLLEA (SEQ ID NO:\_\_).
3. The peptide of claim 1, wherein the sequence is KECVLHDDL (SEQ ID NO:\_\_).
4. A preparation comprising the peptide of claim 1.
- 10 5. A preparation comprising the peptide of claim 2.
6. A preparation comprising the peptide of claim 3.
7. A method of inducing tolerance in a subject to transplants to prevent rejection and/or Graft versus Host disease or a method treating (auto)immune disease in a subject, said method comprising:  
15 administering the preparation of claim 4, claim 5, or claim 6, to the subject.
8. A method for the elimination of a group of hematopoietic cells, said method comprising:  
presenting the peptide of claim 1 or claim 2 in the context of HLA class 1, wherein  
elimination is induced directly or indirectly by specific recognition of the peptide in the  
20 context of HLA class 1.
9. An analog of the peptide of claim 1, claim 2, or claim 3 wherein said analog is an antagonist for the activity of a T cell recognizing the peptide.

10. A process for producing antibodies, T cell receptors, anti-idiotypic B-cells, T-cells, or mixtures of any thereof, said process comprising:
- immunizing a mammal with the peptide of claim 1, claim 2, or claim 3, and
  - harvesting antibodies, T cell receptors, anti-idiotypic B-cells, T-cells, or mixtures of
- 5 any thereof from the mammal.
11. Antibodies, T-cell receptors, B-cells, T-cells, and or mixtures of any thereof obtainable by the process of claim 10.
12. A process for generating a cytotoxic T-cell against a minor antigen, said method comprising:
- 10 contacting a cell selected from the group of a hematopoietic cell and a dendritic cell with the peptide of claim 1, claim 2, or claim 3, thus
- generating a cytotoxic T-cell against the minor antigen.
13. The process of claim 12, wherein the cell is contacted with the peptide in the context of HLA-B60.
- 15 14. The process of claim 12 or claim 13, wherein the cell is a dendritic cell.
15. The process of claim 12, claim 13, or claim 14 wherein the cell is a hematopoietic cell negative for said minor antigen.
16. The process of claim 12, claim 13, claim 14, or claim 15, wherein said minor antigen is HA-1.
- 20 17. The process of any one of claims 12-16 wherein the contacting is carried out *ex vivo*.
18. The process of any one of claims 12-17, wherein said cytotoxic T-cell includes a suicide gene.
19. The process of any one of claims 12-18, wherein said cytotoxic T-cell is immortalized.
20. A cytotoxic T-cell obtainable by the process of any one of claims 12-19.
- 25 21. The cytotoxic T-cell of claim 18, wherein said cytotoxic T-cell is capable of expansion.
22. A method for eliminating a non-hematopoietic tumor cell presenting an HA-1 minor histocompatibility antigen (mHag) in a context of HLA class I, said method comprising:
- directly or indirectly inducing elimination by specific recognition of mHag in the context of HLA class I.

23. A method for killing a non-hematopoietic human tumor cell functionally expressing an HA-1 mHag in the context of HLA class I, said method comprising:  
incubating the non-hematopoietic human tumor cell with a cytotoxic T lymphocyte specific for the HA-1 mHag presented in the context of HLA class I.
- 5 24. A method for determining whether a cell expresses functional levels of an HA-1 mHag in the context of HLA class I, comprising:  
incubating said cell with a cytotoxic T lymphocyte (CTL) specific for said HA-1 mHag presented in the context of HLA class I, and  
determining whether the cell and/or CTL is affected.
- 10 25. A method for marking a non-hematopoietic tumor cell, said method comprising:  
incubating said cell with a molecule capable of specifically binding to an HA-1 mHag presented in the context of HLA class I, or capable of specifically binding to a nucleic acid encoding the HA-1 mHag presented in the context of HLA class I, and  
marking non-hematopoietic tumor cells.
- 15 26. A non-hematopoietic tumor cell comprising:  
a molecule capable of specifically binding to an HA-1 mHag presented in the context of HLA class I, or capable of specifically binding to a nucleic acid encoding said HA-1 mHag presented in the context of HLA class I.
27. A method for at least in part inhibiting expansion of a tumor cell in an individual, said  
20 tumor cell comprising a non-hematopoietic tumor cell presenting HA-1 mHag in the context of HLA class I, said method comprising:  
providing the individual and the tumor cell with a cytotoxic T lymphocyte (CTL) specific for an HA-1 mHag presented in the context of HLA class I,  
thus, at least in part, inhibiting expansion of the tumor cell.
- 25 28. The method according to claim 27, wherein the individual is provided with said CTL by a graft comprising hematopoietic cells from a donor.
29. The method according to claim 27, wherein the individual is provided with said CTL as a result of the induction of a Graft versus Tumor reaction in the individual.
30. The method according to any one of claims 27-29, wherein the individual is vaccinated  
30 with a preparation comprising an immunogenic amount of an HA-1 antigen.

31. A process for generating a cytotoxic T lymphocyte (CTL) capable of binding to an HA-1 mHag presented in the context of HLA class I, said process comprising:

administering to an individual having a mismatch for the HA-1 mHag presented in the context of HLA class I, a non-hematopoietic tumor cell expressing the HA-1 mHag presented  
5 in context of HLA class I,  
thus generating a CTL capable of binding to an HA-1 mHag presented in the context of HLA class I.

32. A cytotoxic T lymphocyte (CTL) capable of binding to an HA-1 mHag presented in the context of HLA class I produced by the process of claim 31.

10 33. A method for treating a disease in a subject related at least in part to non-hematopoietic tumor cells, said method comprising:

administering to the subject an antigen specific T cell having a specificity for HA-1 presented in the context of MHC class-I or a molecule capable of specifically binding an HA-1 mHag in the context of HLA class I,  
15 thus treating said disease.

34. A method for treating cancer in a subject caused by non-hematopoietic tumor cells, said method comprising:

administering a composition comprising an HA-1 antigen to the subject.

35. A method for inducing and/or enhancing the generation of HA-1 specific cytotoxic  
20 lymphocytes in an HA-1 negative donor of lymphocytes, said method comprising:  
administering an HA-1 antigen to the HA-1 negative donor thus generating HA-1 specific cytotoxic lymphocytes.

36. The method of claim 36 wherein the HA-1 antigen comprises the peptide of claim 1 or claim 3.

25 37. A method for treating a disease that is at least in part related to tumor cells, said method comprising:

administering the peptide of claim 1 or claim 3 to a subject.

38. A method for the elimination of a cell selected from the group of cells consisting of hematopoietic cells, tumor cells, and hematopoietic cells and tumor cells, the cell presenting

the peptide of claim 1 or claim 3 in the context of HLA-B60, comprising inducing elimination directly or indirectly by specific recognition of the peptide in the context of HLA-B60.

39. A method for killing a cell selected from the group of cells consisting of hematopoietic cells, tumor cells, and hematopoietic cells and tumor cells, the cell expressing an HA-1 mHag comprising the peptide of claim 1 or claim 3 in the context of HLA-B60, said method comprising:

incubating the cells with a cytotoxic T lymphocyte (CTL) specific for the HA-1 mHag presented in the context of HLA-B60.

40. A method for marking a cell selected from the group of cells consisting of hematopoietic cells, tumor cell, and mixtures of hematopoietic cells, said method comprising:

incubating the cell with a molecule capable of specifically binding to an HA-1 mHag comprising the peptide of claim 1 or claim 3 presented in the context of HLA-B60, or capable of specifically binding to a nucleic acid encoding said HA-1 mHag.

41. The method according to any one of claims 39-41, wherein the cell is a non-hematopoietic tumor cell.

42. A method for determining whether a cell expresses functional levels of an HA-1 mHag comprising the peptide of claim 1 or claim 3 in the context of HLA-B60, said method comprising:

incubating the cell with a cytotoxic T lymphocyte (CTL) specific for said HA-1 mHag presented in the context of HLA-B60 and determining whether the cell and/or CTL is affected.

43. A method for at least in part inhibiting expansion of a tumor cell, said method comprising:

providing the tumor cell with a cytotoxic T lymphocyte (CTL) specific for an HA-1 mHag comprising the peptide of claim 1 or claim 3 presented in the context of HLA-B60.

44. The method according to claim 44 wherein the tumor cell is non-hematopoietic.

45. A method for generating a cytotoxic T lymphocyte (CTL) capable of binding to an HA-1 mHag comprising the peptide of claim 1 or claim 3, presented in the context of HLA-B60, said method comprising:

administering to an individual having a mismatch for the HA-1 mHag, a tumor cell expressing the HA-1 mHag presented in the context of HLA-B60.

46. The method according to claim 46, wherein the tumor cell is non-hematopoietic.
47. A method for treating a disease that is at least in part related to a tumor cell, said method comprising:
- administering a molecule capable of specifically binding an HA-1 mHag comprising
- 5 the peptide of claim 1 or claim 3 in the context of HLA-B60 to a subject.
48. The method according to claim 48, wherein the tumor cell is non-hematopoietic.